Connecticut Clean School Bus Projects

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3. Narrative Workplan

Connecticut Clean School Bus Program

Objectives and Policy Support

Exhaust from diesel engines is a significant contributor to air pollution and has been classified as a probable human carcinogen by the Environmental Protection Agency. Diesel exhaust contains nitrogen oxides, particulate matter, and 40 other known carcinogens including benzene, 1-3 butadiene, formaldehyde, and acrolein.

In Connecticut nearly 387,000 children ride 6,100 school buses each day. Of those 6,100 buses, 99% are diesel fueled. The amount of time a child spends on the bus every day varies from 20 minutes to several hours per day. Collectively, Connecticut children spend 50 million hours on buses each year; therefore, Connecticut has made the reduction of diesel emissions in school buses a priority.

The Clean School Bus Program, already in place in Connecticut, takes a multi-faceted approach to reducing diesel emissions from school buses. Connecticut's strategies aimed at reducing diesel emissions include the following:

- Anti-Idling Policy

  The State of Connecticut has a regulation prohibiting the idling of non-exempt motor vehicles for more than three minutes when outside temperatures are above 20 degrees Fahrenheit. Although this anti-idling regulation has been in place since 1983, the DEP recognized the need to focus on idling school buses in order to raise awareness of the health risks associated with diesel exhaust and educate school bus companies about what they can do to minimize those risks for themselves and school children.

  In January 2002 the DEP, in partnership with the Connecticut School Transportation Association (COSTA), signed an anti-idling policy. The voluntary policy signed by both organizations included notice to all transportation carriers and school bus drivers to eliminate any unnecessary idling. The policy directed school bus drivers to shut off their bus engines immediately upon reaching their destinations; and not to idle while waiting for passengers except under certain conditions. CT DEP in partnership with COST conducts an annual training for school bus drivers as part of an ongoing effort to increase awareness on anti-idling.

  In February 2002, the Connecticut General Assembly passed a statute specifically prohibiting the idling of school buses for longer than 3 minutes unless it meets the exempted conditions. An example of an exempted condition is when the outdoor temperature is below 20 degrees Fahrenheit.

- Education and Outreach

  CT DEP has also utilized diesel reduction efforts as a springboard for educational efforts inside Connecticut's classrooms. The CT DEP has recently contracted with the Steven's Institute from the Center for Improved Engineering and Science Education to develop an air quality curriculum to disseminate and discuss air quality information within the classroom. This curriculum was developed in April 2003 and is being field-tested in 6th, 7th, and 8th grade classrooms in Norwich Public Schools in May and June of 2003. Further testing of the curriculum will occur in the fall of 2003 before Steven's Institute finalizes the lessons and materials.

  Upon completion and contingent upon future funding, the DEP plans to facilitate teacher training of the curriculum content and encourage school districts throughout the State of Connecticut to adopt the unit as part into their science curriculum. This is particularly relevant in districts that have undergone a partial or complete school bus retrofit project and provides the opportunity to bring information about diesel exhaust into the classroom.

- Clean School Bus Retrofit Projects

  The Clean School Bus projects conducted in the State of Connecticut are aimed at reducing the particulate matter, hydrocarbons, and carbon monoxide emitted from diesel school buses. The installation of emission control devices such as diesel particulate filters or diesel oxidation catalysts together with the use cleaner or alternative fuel will reduce the exhaust emissions from school buses. This reduction in diesel exhaust is expected to reduce bus occupant diesel exposure and reducing the adverse health risk related to such exposure.

~History~
Norwich Public Schools

Overview
Beginning in January 2002, the Connecticut DEP partnered with the City of Norwich, the Norwich Public Schools, the Northeast States for Coordinated Air Use Management (NESCAUM), First Student Inc., other state and local agencies, and the Mohegan Tribal Nation to develop and implement a program to reduce diesel exhaust from the fleet of school buses servicing the Norwich school system. This past spring, the CT DEP announced the completion of this pilot project which involved retrofitting 42 of the school buses servicing the Norwich Public Schools with either diesel particulate filters or diesel oxidation catalysts. In July 2002 all buses began utilizing ultra-low sulfur diesel (ULSD) fuel and the fleet has run on ULSD fuel for one year. This project represents the first successful, full fleet school bus retrofit project in the Northeast and serves as a blueprint for similar projects statewide. The Norwich Project was funded through a supplemental environmental project which committed $250,000 to engineer and install retrofits, supply one year of ULSD fuel, and conduct follow up exposure testing.

During the past two months, NESCAUM and its subcontractor, Environment Canada, have been conducting tailpipe and in-cabin emission testing of buses, which were retrofitted with diesel emission control devices as part of the DEP-sponsored Norwich Clean School Bus Project.

The buses, loaded with test equipment and sand bags, were driven for a total of 300 miles on simulated routes, including bus stops under different operating scenarios. Particulate testing was conducted on buses running on ultra low sulfur diesel fuel, which were retrofitted with either diesel particulate filters or diesel oxidation catalysts. However, direct testing of emissions in the cabins of the vehicles has not been done before. With this test data, NESCAUM hopes to better evaluate the performance of the equipment

and correlate tailpipe emission to emissions on the inside of the buses. NESCAUM plans to announce results of testing in a couple of months. Preliminary data indicates that the filtering devices do affect the air quality inside the bus.

DEP and NESCAUM hope that the Norwich Project and its testing program will serve as a model to ensure transferability to other school districts statewide. The project will result in a step-by-step manual on how to implement retrofit projects in other locations. The data will be used to learn more about the cost/health benefits of retrofit equipment and will yield valuable information about equipment performance as other projects move forward.

Norwich Project Partners

Johnson Matthey Diesel Emissions Control Systems
First Student, Inc.
EPA New England- Region 1
Cummins Engine Company
Department of Environmental Protection
Norwich Public Schools
Fleetguard Emission Solutions
CT Department of Public Health
Uncas Health District
Cummins Metropower
CT Department of Motor Vehicles
Norwich Community Development Center
NESCAUM
The Mohegan Tribal Nation
Sprague Energy

~Current Efforts~

New Haven Public Schools
Bridgeport Public Schools
Hartford Public School

Overview

Given the success of the Norwich school bus retrofit project, beginning in the summer of 2003 and continuing until November 2006, CT DEP will utilize and leverage funding from Clean School Bus USA program as it continues to implement its state-wide Clean School Bus plan by initiating the first Phase of retrofit projects in the Cities of New Haven, Bridgeport and Hartford. CT DEP has already met with representatives of each district and has organized project teams. Since the fleets in each of these districts are sizeable, a phased approach to implementation is necessary.

Phase I of these projects involves analyzing each district's bus fleet, evaluating emission control devices (ECDs) that are both suitable for the buses and achieve the maximum environmental benefit. Once the ECDs are identified, Phase I will continue with ECD engineering and installation on a portion of each bus fleet, focusing first on the larger and newer Type I buses.

Phase II of the projects will involve retrofitting a second portion of each bus fleet including more Type I buses and, if funding permits, Type II buses. In the case of the bus fleet servicing Hartford, the number of Type II buses used primarily for special education services outnumber the Type I buses by a factor of 3.

Implementation Plan- Phase I

Step	Action	Bridgeport	Hartford	New Haven
1-Planning	Coordinate with the project partners, including NESCAUM, the bus company, school district, and City to survey each fleet of diesel vehicles and identify bus VINs, exhaust configurations, body style and chassis style.	**Summer 2003** *Completed*	**Summer 2003**	**Summer 2003**
2-Data Collection	Collect operational exhaust temperature and duty cycle data.	**Summer 2003** *Completed*	**Summer 2003** *Completed*	**Summer 2003** *Completed*
3-ECD evaluation	Evaluate emission control device (ECD) technologies (i.e. particulate filter vs. oxidation catalyst) and alternative fuels for selection and implementation: To be completed by Board's of Education, CT DEP, NESCAUM, and bus companies (First Student and Laidlaw)	**Summer-Fall 2003**	**Summer-Fall 2003**	**Summer-Fall 2003**
4- ECD Identification and selection	Identify and select emission control device (ECD) technologies and alternative fuels. To be completed by Board's of Education, CT DEP, NESCAUM, and bus companies (First Student and Laidlaw).	**Within 2 months of funding availability**	**Within 2 months of funding availability**	**Within 2 months of funding availability**
5-Engineering Assessment	Complete engineering assessment of the retrofit technology: To be completed by ECD supplier and NESCAUM.	**Within 6 months of funding availability**	**Within 6 months of funding availability**	**Within 6 months of funding availability**
6- ECD Engineering	Perform hardware engineering, design, and fabrication for the retrofits and on-vehicle malfunction warning lights: Installation of retrofits will be performed on-site at the bus company facilities. Backpressure will be monitored using warning devices and actual pressure gauges that will allow the recording of in-use data in drivers' logs, or real time data loggers that can continuously record multiple parameters simultaneously. To be completed by school bus company operation and maintenance staff, ECD technology vendor, and NESCAUM.	**Within 6 months of funding availability**	**Within 6 months of funding availability**	**Within 6 months of funding availability**

Step	Action	Bridgeport	Hartford	New Haven
7- ECD Installation	Install the ECDs on Phase I portion of the fleet: The project partners including the CT DEP, NESCAUM and the technology vendor will work with the engine manufactures and bus companies to install, test, and maintain the ECD equipment. To be completed by school bus company operation and maintenance staff, ECD technology vendor, and NESCAUM.	**Within 10 months of funding availability**	**Within 10 months of funding availability**	**Within 10 months of funding availability**
8- Long-Term Maintenance	The contractor and/or its technology vendor will train the school bus owners and operators in the proper maintenance and routine repair of the ECD and retrofitted exhaust system.	**During ECD Engineering and Installation- Steps 6 and 7.**	**During ECD Engineering and Installation- Steps 6 and 7.**	**During ECD Engineering and Installation- Steps 6 and 7.**
9- Project support	Conduct outreach and education to support student and community understanding of air pollution and the retrofit project. To be conducted by the CT DEP Kellogg Environmental Center or other organization identified by the project team.	**During project implementation and in the months following project completion.**	**During project implementation and in the months following project completion.**	**During project implementation and in the months following project completion.**

Technologies

The ECDs may consist of diesel particulate filters (DPF), diesel oxidation catalysts (DOC), and/or other EPA verified ECD or technology depending on goals of the project partners, the operating parameters of the engines and project funding availability. Every effort will be made to retrofit as many vehicles as possible, depending on budget, with a DPF since this device achieves the greatest particulate matter emission reductions and will advance Connecticut's diesel reduction strategies. Exhaust temperatures of the subject vehicles and budget constraints may limit the use of DPF technology. In order to retrofit a bus with at DPF, exhaust temperatures must meet the minimum required by the technology (250 deg. for at least 25 minutes). *If exhaust temperatures do not meet the minimum temperature, the DPF will not adequately regenerate and will be more likely to negatively impact the performance of the ECD and the bus. Preliminary temperature data collected on the bus fleets servicing New Haven, Bridgeport and Hartford indicate that exhaust temperatures of buses running on worst case and typical routes do not meet the minimum temperature requirements.* The project partners will conduct a closer examination of this data, collect additional data and evaluate the alternatives before a final decision on ECD technology is made. Where DPF technology cannot be used, DOC or other EPA verified technology will be used and will be the minimum level of ECD pursued under the projects.

Fuel:
In order to enhance the environmental benefit of the ECDs, cleaner/alternative fuels may be used in these projects. Two fuels that are currently being considered are ULSD fuel and an emulsified diesel fuel such as PuriNOx. The use of cleaner fuel for each project will depend on the requirements of the ECD chosen, goals of the project partners and budget constraints.

Since September 2002, the City of New Haven has been operating 251 of its vehicles, including 182 school buses, on ULSD fuel. A grant awarded by EPA allowed New Haven to pay for 500,000 gallons of ULSD fuel (approximately 1 year's worth of fuel). Additionally, the Hartford Board of Education has

secured a supply contract for ULSD fuel starting in January 2004 and continuing until June 2004. These actions are the result of CT DEP's efforts, in cooperation with other partners, to develop a foundation for pursuing school bus retrofit projects.

In order to reduce the cost differential of ULSD fuel, Connecticut DEP will continue its efforts to bring ULSD bulk storage to Connecticut. The CT DEP has had discussions with the fuel supplier (currently Sprague Energy), the school districts, the Cities, Bridgeport Transit, and CT Department of Transportation about their current and planned use of ULSD to gauge whether or not the total statewide usage will be enough to warrant permanent storage in New Haven harbor before 2006. If permanent storage cannot be secured for these retrofit projects, projects using ULSD fuel will have the fuel delivered from either Boston or New York (depending on the proximity of the project) until permanent storage is obtained.

Specific information for each project and a list of the project partners (see attached letters of support) to date is presented below**.**

~New Haven Project~

Environmental Justice, Asthma and Air Pollution in New Haven

Approximately 20,000 students will be attending New Haven public schools in the 2003/2004 school year, of which over 16,000 will be transported on school buses to and from both in-district and interdistrict schools. Because of the variability of school bus routes, students could spend anywhere from 15 minutes to one hour riding to and from one of New Haven's 49 schools.

The Connecticut Department of Education uses Educational Reference Groups (ERGs) to categorize Connecticut school districts based on socioeconomic status (SES). These ERG categories (lettered A-I) group districts that share common socioeconomic and educational characteristics. The New Haven school district is categorized in ERG I, which is lowest SES group and is identified by the Department of Education as a "high need urban area".

Three year averages of fine particulate levels across Connecticut range between 11.8 and 16.6 ug/m3. The highest levels were recorded at the Stiles Street monitoring site in New Haven and show an exceedance of the National Ambient Air Quality Standard (NAAQS). Although Connecticut DEP believes this data is reflective of localized conditions at the Stiles Street monitoring site, the Connecticut DEP is focusing on particulate reduction and diesel reduction strategies for the City of New Haven.

According to a 2000 report by Environment and Human Health Inc. (EHHI) asthma rates among elementary students in New Haven County are the 3rd highest in the state.

Partners

CT DEP
NESCAUM
EPA- New England
New Haven Board of Education
City of New Haven, Office of City Plan
City of New Haven, Office of the Mayor
New Haven Environmental Justice Network
Yale School of Forestry
First Student, Inc.

Fleet Information
Total Estimated Number of Buses: 182
Annual Fuel Consumption: 423,000 gal.
Annual Hours of Operation: 300,000 to 320,000
Annual Miles Traveled: Avg. 950 miles per month/bus; 1,729,000/fleet/year
Min. time retrofitted buses will remain in district: 5+ years

Type	Vintage	Number	Engine Manufacturer	Engine Type
1	**2002** 2001 2000	**157*** 15 10	**International-Navistar** International-Navistar International-Navistar	**T444E** T444E T444E

*A portion of the 2002 buses is targeted for Phase I of the retrofit project. The actual number of buses retrofitted will depend on amount of funding available and retrofit scenario (ECD/fuel) selected for the project.

Air Quality Attainment Status
PM10- Non-attainment
PM 2.5- Not yet classified, three years of data collected indicates measurements above the NAAQS.
CO- Maintenance
Ozone-Serious Non-attainment

Financial Participation
As mentioned previously, EPA has already contributed $75,000 to fund ULSD fuel for the New Haven fleet, which covers last year's ULSD fuel demands. Additional funding for the New Haven retrofit project ("the New Haven Project") comes from a Supplemental Environmental Project (SEP) resulting from an enforcement action between the Connecticut DEP and Yale University. From this SEP, the Connecticut DEP contribution to this project is $437,398. Since the majority of this money will likely be used to fund the cost differential for the use of ultra low sulfur diesel fuel, through this grant application, the Connecticut DEP seeks additional funding to purchase emissions control devices for a comprehensive school-bus retrofit project for the buses servicing the New Haven Public Schools.

~Bridgeport Project~

Environmental Justice, Asthma and Air Pollution in Bridgeport

For the 2003/2004 school year, approximately 13,000 Bridgeport students will be transported on buses to various schools within and outside of the school district. The average length of time a Bridgeport student spends on a bus each day is 40-45 minutes.

Like the New Haven school district, the Bridgeport school district is categorized in the ERG I and is considered a "high need urban area". It too is identified as an area that is the focus of the Connecticut DEP's Environmental Equity Program. In addition, according to data obtained from the Connecticut Coalition for Environmental Justice[1], the City of Bridgeport is a district with a high minority population and a large quantity of air polluting sources.

[1] Connecticut Coalition for Environmental Justice website map titled "2000 Census Tracts Percent Minority and Plants Emitting Criteria Air Pollutants", retrieved 4/28/03 from World Wide Web at http://www.environmental-justice.org/ej_maps/airpoll_minority.html.

According to the Children's Health Council, 13% of Bridgeport children under the age of 21 who were enrolled in the HUSKY (a subsidized health insurance program to help Connecticut families obtain and afford coverage for their children) from October 2000 to September 2001 were treated for asthma related illnesses. This is up from 10% during the previous year. In addition, Fairfield County has the highest number of ozone exceedance days in the State. These factors make the City of Bridgeport a focus for air pollution reduction strategies. To date, representatives of the Connecticut DEP have met with the project partners (listed below) to develop an implementation team and plan the initial stages of a diesel school bus retrofit project. Letters of support from the Bridgeport Project partners are attached to this work plan.

Partners
CT DEP
NESCAUM
Bridgeport Board of Education, Office of the Superintendent
Bridgeport Child Advocacy Coalition
City of Bridgeport, Mayor's Office
Laidlaw Education Services

Fleet Information
Total Number of Buses: 208
Annual Fuel Consumption: aprox. 395,000 gallons
Annual Hours of Operation: 175,000-200,000
Annual Miles Traveled: 10,500 per bus/year
Min. time retrofitted buses will remain in district: 5 years

Type	Vintage	Number	Engine Manufacturer	Engine Type
1	**2003**	**20**	**International-Navistar**	**T444E**
	2002	**6**	**International-Navistar**	**T444E**
	2001	**20**	**International-Navistar**	**T444E**
	1999	**4**	**International-Navistar**	**T444E**
	1998	19	International-Navistar	T444E
	1997	20	International-Navistar	T444E
	1996	39	International-Navistar	T444E
	1995	13	International-Navistar	T444E
	1993	1	Genesis	DTA369
	1990	1	International	7.3L IHC
2	2003	3	Ford	6.5L
	2002	3	Ford/ Chevy	E 351-7.3/6.5L
	2001	1	Chevy	6.5L
	2000	11	Ford/Chevy	6.5L
	1999	1	Ford	7.3L
	1998	15	Genesis/Ford	DT 466/7.3L
	1997	20	Ford/Chevy	7.3L/6.5L
	1996	6	Ford	7.3L
	1995	2	Ford	7.3L
	1994	3	Ford	7.3L

Buses in **bold** targeted for Phase I retrofits

Air Quality Status
PM10- Non-attainment
PM 2.5- Not yet classified
CO-Maintenance
Ozone-Severe Non-attainment

~Hartford Project~

Environmental Justice, Asthma and Air Pollution in Hartford

For the 2003-2004 school year, Hartford anticipates that 5000 of its students will be transported to district schools on school buses. A majority of the Hartford fleet (150 buses) consists of Type 2 buses that primarily service special education students.

The Hartford school district is also categorized as an ERG I group identified by the Department of Education as a "high need urban area". In addition, according to data obtained from the Connecticut Coalition for Environmental Justice[2], Hartford is a district with a high minority population and air polluting sources. Children in Hartford are three times more likely to be hospitalized for asthma related health issues than other children in the state. Asthma accounts for 18% of the cause for emergency room visits among children ages 0-14, the highest rate of such visits among the major urban areas in the Connecticut[3]. In Hartford, rates of asthma are also highest among African Americans (30%), and Hispanics (50%)[4]. To date, representatives of the Connecticut DEP have met with the project partners (listed below) to develop a project team and implementation plan to outline the initial stages of the project. Letters of support from the Hartford Project partners are attached to this work plan.

Partners
CT DEP
NESCAUM
Hartford Board of Education, Office of the Superintendent
Hartford Environmental Justice Network?
Laidlaw Education Services

Fleet Information
Total Estimated Number of Buses: 172*
Annual Fuel Consumption: aprox. 266,000 gallons
Annual Hours of Operation: 900 per bus; 147,600 for fleet
Annual Miles Traveled: 55 per bus/day and 9900 per bus/year
Min. time retrofitted buses will remain in district: 5 years

Type	Vintage	Number	Engine Manufacturer	Engine Type
1	**1997**	**20***	**International- Navistar**	**T444E**
1	**1996**	**40***	**International-Navistar**	**T444E**

[2] Connecticut Coalition for Environmental Justice website map titled "2000 Census Tracts Percent Minority and Plants Emitting Criteria Air Pollutants", retrieved 4/28/03 from World Wide Web at http://www.environmental-justice.org/ej_maps/airpoll_minority.html.
[3]Information retrieved from asthma fact sheet produced by Hartford Health Department Asthma Call to Action Task Force retrieved from http://www.buac.org/minutes/11_8_01_minutesaddendum.pdf
[4] Information retrieved from asthma fact sheet produced by Hartford Health Department Asthma Call to Action Task Force retrieved from http://www.buac.org/minutes/11_8_01_minutesaddendum.pdf

Type	Vintage	Number	Engine Manufacturer	Engine Type
2 ↓	2003 2001 2000 1999 1998 1997 1996 1995 1994	7 16 27 7 11 11 23 5 5	Various- Chevy, Ford, GMC	

* The 1997 and 1996 Type I buses are replacing existing fleet of 1991/1992 Type I buses and will be new to the district this year. The exact breakdown of how many vehicles of each vintage will be part of the 2003/2004 fleet needs to be determined.

Buses in **bold** targeted for Phase I retrofits

Air Quality Attainment Status

PM10-Non-attainment
PM 2.5- Not yet designated
CO-Maintenance
Ozone-Serious Non-attainment

Financial Participation

Bridgeport and Hartford:
Partial Funding for the Bridgeport retrofit project and the Hartford retrofit project comes from a SEP awarded on April 21, 2003 resulting from an enforcement action between the State of Connecticut and Virginia Electric and Power Company (VEPCO). The DEP contribution to these, and other, retrofit projects is $1.1 million dollars. According to the Consent Decree, these SEP funds must be used to purchase and install particulate filters for diesel school buses that operate in selected urban communities in Connecticut, including any combination of the following:

1. Conversion of conventional diesel-powered school buses to buses with particulate traps, OR;
2. Procuring of ultra-low sulfur diesel fuel and necessary infrastructure to power for up to three years buses converted in the manner described in 1, OR;
3. Installing additional air pollution controls (including CRTs, other particulate traps or controls) on such buses.

The DEP must submit a plan to VEPCO outlining how the funds will be spent in accordance with the criteria specified in the Consent Decree. We expect this plan to be submitted by the end of August 2003. We hope to allocate at least 1/3 of this amount each to the projects in Bridgeport and Hartford to cover the cost differential of ULSD fuel, or if ULSD fuel is not used, the cost of equipment to complete a comprehensive retrofit project in each district.

4. Funds Requested

The Connecticut DEP (CT DEP) and Northeast States for Coordinated Air Use Management request $375,000 from the EPA to conduct school bus retrofit projects in New Haven, Bridgeport, and Hartford.

5. Total Cost of the Projects

Project cost estimates reflect the goals of the project, which is to select a retrofit scenario that achieves the highest emission reductions. Therefore, estimates are based on the cost of retrofitting each bus with a diesel particulate filter and running the entire fleet on ultra low sulfur diesel fuel at a differential cost of 25 cents per gallon. Actual project costs are expected to be less since it is unlikely that all buses will not be retrofitted with the DPFs because of temperature limitations. Also, if alternative fuel is used, the project partners will work to obtain a lower price for the cost of the ULSD fuel. If actual equipment and fuel costs are less than project estimates, the remaining money will be used to retrofit more vehicles in each fleet.

Project	Cost of Equipment for Phase 1	Total Estim. Cost of Fuel Differential (if alt. Fuel used)	Estimated Cost of Overhead	Cost of Education and Outreach	Estimated Total Cost of Phase 1
New Haven	50 Buses at max. $7500/ bus **$375,000**	For 3 years at $90K/year **$270,000**	AT 15% cost of retrofits **$56,250**	**$10,000**	**$701,250**
Bridgeport	50 Buses at max. $7500/bus **$375,000**	For 2.5 years at $90K/year **$225,000**	At 15% cost of retrofits **$56,250**	**$10,000**	**$666,250**
Hartford	60 Buses at max. $7500/bus **$450,000**	For 2.5 years at $67K/year **$167,500**	At 15% cost of retrofits **$67,500**	**$10,000**	**$695,000**
				Total Cost for Projects	$2,062,500
				DEP Contribution toward Projects (56%)	$1,171,398
				Additional Funding required for Projects	**$891,102**

6. Detailed Budget

Personnel	
Fringe Benefits	
Contractual Costs	180,000
Travel	20000
Equipment	**1,200,000**
Supplies	
Other	10,000
Total Direct Costs	

Total Indirect Costs	
Total Cost	

EPA money awarded through this agreement will be used to cover the cost of the **equipment** category of the detailed budget. Funds will be dedicated for purchasing EPA verified emissions control devices on school buses servicing the public schools in those districts. If awarded, money from this agreement will be used to cover the cost of retrofitting buses of Phase I of the Bridgeport Project, Hartford Project, and New Haven Project.

Connecticut DEP will match up to 56% of funds required to cover the costs of emission control devices, overhead costs associated with each project, fuel differential costs (if necessary), and local education and outreach initiatives.

Connecticut DEP will also assist districts in obtaining additional funds for retrofit technology through CEMAC and will use existing funds to leverage additional funding through the Clean School Bus USA program, the Toyota Settlement Agreement, future SEPs, and any additional funding opportunities.

7. Project Periods

Project	**Beginning**	**End (Phase1)**	**End (all phases)**
New Haven	Fall 2003	November 2005	Fall 2006
Hartford	Fall 2003	November 2005	Fall 2006
Bridgeport	Spring 2003	November 2005	Fall 2006

8. Reporting Requirements

For the duration of each phase of each project that is funded by this agreement, Connecticut DEP and its subcontractor will provide to EPA quarterly progress reports on the status of retrofit selection, engineering, installation, retrofit and bus operation, maintenance training, and education and outreach efforts. Progress reports will be submitted pursuant to the schedule established by EPA.

Connecticut DEP and NESCAUM will also provide a final report on the ……?